

WE CLAIM:

1. A combination of a female die mold and a compounder feeder apparatus for mixing materials prior to being directly injected into the female die mold, said compounder feeder apparatus comprising
first and second parallel screws having mixing discs attached thereto, the mixing discs of said first and second screws being spaced and non-interengaging, and drive means mounting said first and second screws so as to rotate said screws and to move said second screw axially toward and away from said female die mold and both mix said materials and inject said mixed materials directly into said female die mold.
2. The combination according to claim 1, wherein said drive means comprises interengaging first and second gears connected to said first and second screws, said second gear being axially movable along said first gear, a drive motor for rotating said first screw, and a drive cylinder connected to said second screw to move it axially toward and away from said female die mold.
3. The combination according to claim 2, including a gear box connected between said drive motor and said second screw.
4. A compounder feeder apparatus for mixing materials prior to being directly injected into a female die mold, said compounder feeder apparatus comprising

first and second parallel screws having mixing discs attached thereto, the mixing discs of said first and second screws being spaced and non-interengaging, and drive means mounting said first and second screws so as to rotate said screws and to move said second screw axially toward and away from said female die mold and both mix said materials and inject said mixed materials directly into said female die mold.

5. A compounder feeder apparatus according to claim 4, wherein

said drive means comprises interengaging first and second gears connected to said first and second screws, said second gear being axially movable along said first gear, a drive motor for rotating said first screw, and a drive cylinder connected to said second screw to move it axially toward and away from said female die mold.

6. A compounder feeder apparatus according to claim 5, wherein a gear box connected between said drive motor and said second screw.

7. A method for injection molding in a female die mold a material comprising first and second components injected into the female die mold from a non-intermeshing twin screw compounder feeder which includes first and second parallel mixing screws, each of said first and second mixing screws having a first end remote from said female die mold and a second end near said female die mold, said method comprising the steps of:

(a) rotating said first and second mixing screws such that components of said material supplied therearound will form filled and partially filled screw channels and will be moved toward said female die mold as said material is mixed therebetween,

(b) adding said first component of said material around said first mixing screw at a first location at said first end thereof,

(c) axially moving said second mixing screw in a direction away from said female die mold,

(d) adding said second component of said material around said first mixing screw at a second location between said ^{said} first location and ^{said} second end thereof,

(e) applying a vacuum adjacent said first mixing screw and to the material therearound at a third location between said second location and said second end thereof,

(f) discontinuing rotation of said first and second mixing screws, and

(g) pushing said second kneading screw towards said female die mold to inject material therein.

~~28.~~ A method according to claim ~~1~~, wherein said first component is a polymer.

~~3~~ ~~2~~ A method according to claim ~~8~~, wherein said second component is glass fibers.

~~4~~ ~~10.~~ A method of mixing first and second components so as to provide a mixed material using a non-intermeshing twin screw

compounder which includes first and second parallel mixing screws, each of said first and second mixing screws having a first end remote from a discharge opening and a second end near said discharge opening, said method comprising the steps of:

(a) rotating said first and second mixing screws such that components of said material supplied therearound will be moved toward said discharge opening as said material is mixed therebetween,

(b) adding said first component of said material around said first mixing screw at a first location at said first end thereof,

(c) axially moving said second mixing screw in a direction away from said discharge opening,

(d) adding said second component of said material around said first mixing screw at a second location between said first location and ^{said} second end thereof,

(e) applying a vacuum adjacent said first mixing screw and to the material therearound at a third location between said second location and said second end thereof,

(f) discontinuing rotation of said first and second mixing screws, and

(g) pushing said second kneading screw towards said discharge opening to eject material from said twin screw compounder.